

Remarks

Claims 1, 3-7, 9-14, 16-21, 23, and 25-37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,155,684 to Bille et al. ("Bille '684") in view of U.S. Patent No. 6,129,722 to Ruiz ("Ruiz").

In this response, Applicants have amended claims 1, 3, 6, 7, 10, 21, 23, 25, 26, 28, 32, 34, and 35. Claims 1, 3-7, 9-14, 16-21, 23, 25-37 remain pending in this application. Applicants respectfully request withdrawal of the rejections to claims 1, 3-7, 9-14, 16-21, 23, and 25-37 in view of the amendments and the following remarks.

Rejections under 35 U.S.C. § 103(a):

Claims 1, 3-7, 9-14, 16-21, 23, and 25-37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bille '684 in view of Ruiz.

Bille '684 describes a method and apparatus for precompensating the refractive properties of the human eye with adaptive optical feedback control. According to the Bille '684 arrangement, a beam of light is directed through the eye for reflection from the retina. The reflected beam, which includes refractive aberrations, is separated into several individual beams by a lenslet, which are then analyzed by a computer to establish an acuity map for the eye. The acuity map is then reversed to generate a negative acuity map which is then used to configure the reflective surfaces of an active mirror. Afterward, incoming light from a stimulus is reflected from the active mirror to precompensate. The arrangement is contemplated mainly for diagnostic purposes. See Abstract.

Ruiz describes a system and method for correcting corneal irregularities through reshaping of an eye's cornea to provide a desired corrective corneal curvature. Ruiz uses a topography device for mapping the irregularities and surface deviations of a cornea. Ruiz does not describe or suggest the use of wavefront analysis.

Independent claim 1 recites a device for correcting visual defects of the eye. Applicants have amended claim 1 to add the additional feature of "a control unit configured to process signals of the topography analyzer unit and the wavefront analyzer device and to calculate a plurality of shot positions using the signals", and to recite that the beam modification device is configured to shape and deflect a beam of the coherent light source "according to the plurality of

calculated shot positions” for processing an optical element. Support for the changes to claim 1 is found in the application, for example, at paragraph [0040].

Applicants respectfully submit that the combination of Ruiz et al. and Bille ‘684 does not teach or suggest all of the features of independent claim 1. Specifically, neither reference teaches a control unit configured to calculate a plurality of shot positions using signals from a wavefront analyzer device, nor to calculate a plurality of shot positions using signals from both a wavefront analyzer device and a topography analyzer unit as recited in claim 1. Furthermore, neither reference suggests a beam modification device for shaping and deflecting a beam according to the plurality of shot positions so calculated by the control unit.

The main purpose of the Bille ‘684 arrangement is for diagnosing visual defects and to correct visual defects by “precompensating” for the refractive aberrations using an active mirror. See column 1, lines 15-27. As the Examiner points out, Bille ‘684 also mentions that the arrangement could also be used to “control the spatially distributed pattern of an excimer laser.” See column 5, lines 38-52. Applicants submit, however, that Bille ‘684 does not teach or suggest a control unit for calculating a plurality of shot positions and a beam modification device for deflecting the beam according to the calculated shot positions. On the contrary, Bille ‘684 teaches the use of an active mirror “to obtain a direct template of the target surface shape of the cornea” and a computer to control the amount of ablation that is to be accomplished “within a particular target spatial area” using the template. Column 5, lines 40-46. Thus, Bille ‘684 teaches to control the spatially distributed pattern of a single excimer laser beam that covers a significant portion of the eye. It does not teach or suggest deflecting the beam according to a plurality of shot positions for processing an optical element as recited in claim 1.

Applicants further submit that Ruiz does not cure the shortcomings of Bille ‘684. Ruiz, which does not teach or suggest the use of wavefront analysis, also provides no suggestion for the features of calculating a plurality of shot positions using wavefront analysis or for using a beam modification device to deflect a beam according to the calculated shot positions.

Accordingly, withdrawal of the rejection to claim 1 under 35 U.S.C. §103 is respectfully requested.

Applicants have made similar amendments to independent claim 7, except that in claim 7, the plurality of shot positions is calculated as a function of the data obtained from the wavefront analysis. Dependent claim 10 was amended to recite that the calculation is performed as a

function of data obtained from the wavefront analysis and the topography analysis. Dependent claim 9 was amended to add the feature that the shaping and deflecting is performed virtually simultaneously with the determining of the optical path or the analyzing of the topography. As discussed above, Bille '684 does not teach or suggest calculating a plurality of shot positions, with or without wavefront analysis or topography analysis. Bille et al. actually teaches away from calculating a plurality of shot positions by suggesting control of "a spatially distributed pattern" of a single excimer laser beam over a significant portion of the eye.

Similar amendments were made to independent claims 21 and 23, which are limited to the processing of intraocular lens or implantable contact lens using a light source. Dependent claims 25 and 26 were amended to recite terminology that is consistent with claim 21 from which the claims depend.

Similarly, independent claims 28 and 32 were amended to include the feature of calculating a plurality of shot positions using wavefront analysis. Claims 28 and 32 do not recite a topography analyzer unit or a step of analyzing the topography and instead provide for simultaneous processing of the optical element. Dependent claims 3, 6, 10, 25, 26 and 35 were amended to be consistent with the amended independent claims.

As discussed above with respect to independent claims 1 and 7, Applicants respectfully submit that the combination of Bille '684 and Ruiz does not teach or suggest the feature of calculating a plurality of shot positions using wavefront analysis, nor a control unit configured to perform such a calculation, nor a beam modification device configured to shape and deflect a beam according to such a plurality of shot positions so calculated. Accordingly, withdrawal of the rejections to claims 2, 3-7, 9-14, 16-21, 23, and 25-37 under 35 U.S.C. § 103(a) is likewise respectfully requested.

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CONCLUSION

In view of the amendments made and arguments presented, Applicants respectfully submit that the presently pending claims are in condition for allowance.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

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